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not mean that the child is aware of the pleasures and pains of the doll as it is of its own. The doll has no pleasures and pains.

Nor need it be assumed that there is present an *indirect* or *representative* knowledge of the contents of another mind. It is only gradually that we come to a consciousness of the distinction between our own minds and other minds, as has been said above. At first this distinction does not seem to be grasped at all, and at this stage we can not say that one has any knowledge of another mind; then it is grasped dimly, as it appears to be by children who have progressed so far as to distinguish between another's pain and their own sorrow for another's pain; finally it is grasped clearly, and it is realized that my thought of another mind is never to be confused with another mind, and that the latter is for me a matter of inference.

We may not say that, the farther back we go toward the undistinguishing and unintelligent beginnings of our mental life, the more immediately are we aware of other minds. Ignorance of distinctions and of their significance is not knowledge. As a matter of fact, our knowledge of other minds grows in exactitude and in extent as our minds develop and grow critical. We strip the doll of its emotions altogether, and we learn not to attribute to the fly and to the spider the thoughts and feelings of human beings.

And in all this we follow the lead of the argument from analogy, recognizing that we have no other stepping-stone to a knowledge of other minds. That there is no other stepping-stone seems to me to be revealed even by the writings of those who have objected to this one. In the two papers to follow I intend to examine certain objections to the common sense doctrine; and the fact that men of learning and acuteness have found it possible to bring objections against it must be my excuse for discussing, as I have done, what to most persons must seem a matter scarcely calling for discussion.

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STANDARD TESTS OF ARITHMETICAL ASSOCIATIONS

WITH a view to determining their relative efficiency as measures of that type of controlled association exemplified by quickness at figures, three tests were employed which may be termed respectively the column test, the pair test and the increment test. In the column test the digits were arranged in columns of five digits each, the subject calling out as rapidly as possible the sum of each column of five. In the pair test series of two varying figures were presented together and the subject called out the sum of the successive pairs. In the increment test a certain constant figure, in these experiments 4, is added to each of a series of figures ranging between 21 and 89. The actual figures composing all series were standardized according to a fixed method, and the amount of work done in a fixed time was in all cases taken as the standard of measurement. One minute was the usual time allowed, the work done in each 30 seconds being recorded. In the case of subject IV. and in one of the ten subjects the records are 30 and 15 second times multiplied by 2. These subjects worked so rapidly that they ordinarily completed the series in the longer interval. By this method the constancy of the individual association times is measured in the variability of the ratios of the first and second half-times independently of the diurnal variations. These ratios should, in the absence of fatigue and practise, approximate 1. It is the constancy of the ratio from day to day, however, that is significant independently of its average. The more constant the ratio the less variable and consequently the more efficient the measure of the individual association times. The ratio given is always in terms of the per cent. of the work done in the first half-time that is done in the second. Below 1 it indicates fatigue, above 1, practice. The results are from 50 records of each test, 10 records on four subjects and one record on each of ten subjects, the figures being as follows:

TABLE I.

	Average Ratios of 1st and 2d Half-times.			Diurnal Average in Amount of Work Done. Number of Associations in Specified Time.					
	Column Test.	Pair Test.	Increment Test.	Column Test.		Pair Test.		Increment Test.	
				a	*b*	*a*	*b*	*a*	*b*
I.	1.22	.99	.89	7.2	7.8	30.2	29.6	30.4	28.9
II.	1.04	1.01	.88	6.1	6.7	30.3	32.6	25.9	22.9
III.	1.06	.96	.93	5.0	5.0	29.6	28.5	16.0	15.0
IV.	1.05	1.05	.99	10.8	11.6	54.2	57.4	38.0	37.8
X.	1.05	.94	.90	7.5	8.2	33.4	31.0	22.8	24.4
Av.	1.08	.99	.92	7.3	7.9	35.5	35.8	26.6	25.9

Roman numerals refer to subjects; *a* and *b* refer to the 1st and 2d half-times; X. refers to the ten subjects.

The individuals seem to do slightly better in the second than in the first half in the column test, about the same in the pair test, while the increment test yields a certain amount of fatigue. In the diurnal averages there is illustrated much individual difference, and rather less correlation between the tests than one would have expected between measures that seem so closely related to a single ability. III., for example, is only slightly below the average in the pair test, but very much below it in the increment test. For practical purposes these records would have to be corrected for the speaking speeds of the individuals, which vary a great deal, as has been previously shown. III., besides being an inferior adder, is a much slower speaker. This is an unessential factor here, since the experiments are not intended as a comparison of individuals, but of tests.

The true test of tests is found in their variability as illustrated below. The diurnal variations in the column test are not directly equably comparable with the others, since the individual measures are here themselves the average of five associations. As above, X. has no diurnal variation, the figures being simply the average for the ten subjects, but their results are here allowed to enter into the average. The number of errors made in each type of test for all subjects is also given. As a result, the column test is inferior on all counts; the increment test is superior in constancy of the individual associations and freedom from diurnal variations. It is also a more flexible test since the numbers to be added may be varied at will, and it is equally convenient for subtraction. It is inferior to the pair test in freedom from errors, for although the absolute number is less, it is greater in proportion to the number of associations.[1]

TABLE II.

	Mean Variability of Ratios of 1st and 2d Half-times.			Diurnal Mean Variation in Amount of Work Done.					
	Column Test.	Pair Test.	Increment Test.	Column Test.		Pair Test.		Increment Test.	
				a	*b*	*a*	*b*	*a*	*b*
I.	.298	.118	.102	.99	1.43	4.6	4.6	4.2	2.4
II.	.980	.147	.106	.86	.51	3.3	2.4	1.5	2.0
III.	.251	.092	.092	.55	.65	1.4	3.3	1.8	1.7
IV.	.180	.075	.079	.60	.85	2.6	2.7	1.3	1.7
X.	.112	.141	.112	2.00	2.40	7.3	9.5	5.2	5.8
Av.	.188	.116	.098	1.00	1.17	3.8	4.5	2.8	2.7
Errors	31	16	13						

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DISCUSSION

PROFESSOR FITE ON THE EXAGGERATION OF THE SOCIAL

HEGEL and Spencer have added much to the thought of the time about the social consciousness, but the former's theory of the state and the latter's idea of the social organism have prob-

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[1] These experiments were performed in the psychological laboratory of Columbia University. Standard blanks for the pair and increment tests have been prepared, and are included among the psychological blanks issued by the laboratory.